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September 4, 1970

U.S. Government

Subject: Suggested Instruments for Stereocomparator Maintenance

Gentlemen:

As a result of your meeting of August 20, 1970 with our [redacted] he has outlined below some suggestions for instruments which should help you in performing maintenance on the Stereocomparator.

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1. Frequency Response Analyzer

[redacted] Model 1410 modified for remote programming BCD printer output and auto ranging. Approximate cost less than [redacted]

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This instrument in its basic form costs under [redacted]. It is suggested that it be purchased in its computer programmable version so that it could (if it is so desired) be coupled into the Diagnostic Computer Program if and when the program is modified to accommodate it.

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The detailed specifications of the computer interface for the Analyzer would have to be developed as the Diagnostic Program work proceeds.

This instrument is essential to properly adjust and maintain complex servo systems. Its application is not limited to the Stereocomparator.

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2. Special micrometer eyepiece microscope

A standard microscope should be modified to interface with the eyepieces and the eyepiece holding fixture on the Stereocomparator.

The objective lens should be a good quality 10X unit with medium to large numerical aperture.

The micrometer eyepiece should be 10X to 12X and have a micrometer graduation of 0.01mm. The graduation is only required on one axis provided the reticle can be rotated through 90° to facilitate reading on both X and Y axes.

This unit is required for adjustment and calibration of the reticle for the Stereocomparator. In addition it has various subsidiary uses during calibration of the main viewing optics.

The cost of the assembly should be less than plus the cost of modification.

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3. Millitron Electronic Comparator

No. 1204Z, with No. 1306 Gaging Head equipped with No. ME-1 Ruby and No. ME-1 Carbide Contact Points. The gaging head would be installed in a No. 815-G base.

The equipment indicates changes in length of 0.000,000,2 inches least count. It can be obtained calibrated in metric units which would probably be an advantage for the Stereocomparator.

This instrument would be primarily useful for adjusting the interferometer mirrors, guide air bearings, objective optical axis wander and stage stability.

It should be noted that these adjustments are part of the Stereocomparator installation adjustments. It is possible the routine maintenance program to be performed by may prove to be sufficient to maintain the adjustments enumerated above. Thus the gauge procurement could be deferred until such time as its need was fully determined.

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4. Set of metric tools including small and medium sized socket wrench sets and Allen wrench sets: The optical system is equipped with all metric threaded nuts and bolts. Estimated cost less than

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Various other minor items discussed at the August 20, 1970 meeting could be deferred, we believe, so long as is performing the routine quarterly maintenance.

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Yours very truly

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vice president

BCJ:jk